Flora Survey

Southampton Common

2015

REPORT

For Southampton City Council & Southampton Natural History Society

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Cover Picture: Green-winged Orchid *Anacamptis morio*

Background to the Survey

In 2014 the five member committee of the Hawthorns Support Group (formerly the Hawthorns Wildlife Association and hitherto referred to as HSG and HWA respectively) decided to cease operating as a voluntary support group for the Hawthorn Urban Wildlife Centre. In 2015 the Southampton Natural History Society (hitherto SNHS) agreed to take over some of the former public events run by the HSG. Other former HSG activities, such as the membership services, assisting the Hawthorns Centre at weekends and fund-raising were, or had already been, discontinued. On 22nd January 2015 Nick Smith, the former chair of the HSG/HWA, was co-opted on to the committee of the SNHS.

The HSG/HWA was originally set up in 1981 as the Southampton Common Study Centre Association (SCSCA) and was originally a membership-based voluntary group primarily concerned with fund-raising for the old study centre on Cemetery Road. It also provided assistance with public events at the weekends. In April 1990 the SCSCA changed its name to HWA following the opening of the new urban wildlife centre on the former site of Southampton Zoo and Hawthorns Cottage.

During the long period that the support group existed a reasonable fund had built up in the bank and at the termination of the group various ideas were raised by the former members of the committee. One of the actions that were agreed in 2014 was to compile an up to date list of the flora of the common. It was considered that this would be an achievable and useful means by which some of the funds could be used and would also provide an informative legacy against which future trends in the flora of the common could be measured. Furthermore the results of this survey could be compared to a previous similar survey conducted in 1979 by the City of Southampton Society. This earlier survey was published in their booklet Southampton Common in Appendix A (page 72 to page 81)

One of the former members of the HSG committee Philip Budd, conducted this survey in the spring and summer months of 2015, at the request of the remaining four former members.

Introduction

The purpose of this survey was to:

Compile a list of all species of Vascular Plants, including ferns and allies, found growing in the wild or naturalised within the boundaries of Southampton Common (see figure 1). Obviously planted species were excluded from the survey and such species as listed by The City of Southampton Society (1979) were not considered relevant to the results or discussion.

The boundary of the survey area included all parts of the common; including those areas east of The Avenue (see figure 1). The total extent of this area is 365 acres or 148 hectares (The City of Southampton Society, 1979). Originally it was not intended to include the old cemetery in this survey but at a later stage this area was included for two reasons. Firstly the old cemetery is historically part of the common and secondly the list produced by The City of Southampton Society (1979) included species found in the old cemetery but didn't necessarily distinguish those from plants found elsewhere. However there was no intensive re-survey of the old cemetery area and much data was obtained from other sources such as Vetterlein, J. *pers comm*., and the results of an unpublished thesis entitled "An evaluation of how varied mowing times effect insect abundance in Southampton Old Cemetery" (Budd, 2013).

There were two separate spring and summer phases to the survey and several visits were required to cover the whole area. The main spring surveys took place on 8th April, 10th April and 23rd April but a few records were also obtained on 5th February and 8th February. The summer survey visits took place on 21st July and 21st August and were then followed by two final early autumn visits on 5th September and 10th September.

The results were later compared directly with those published by the City of Southampton Society (1979).

Method

The field survey for Vascular Plants involved the simple observation and field identification of most of the species, assisted by use of x10 hand lens. Only a few specimens were taken from the field. Where required the identification reference used was Stace (2010) and this was also the reference for the current scientific names, several of which have altered since 1979.

It was not possible to cover every square of such as large area as the common so dull areas such as improved amenity grassland and the shady interiors of woodland were only lightly recorded. Much more effort was concentrated on the richer and/or more unusual habitats, with a particular emphasis on the surviving semi-improved grasslands, wet areas, woodland edge and heath land/acid grassland.

Data was listed using standard Hampshire Biodiversity Action Plan (Hants BAP) Plant Recording Forms. A form was completed for each of the one kilometre squares covering the common area; this greatly assisted the determination of the status of each species on the final list. From these lists the data was entered into a Mapmate® recording software package (version 2.4.0). From this spreadsheets could be generated.

On the final spreadsheet (see tables 1 & 3) there are separate columns for taxon (scientific name), vernacular (common name), status in 1979 (The City of Southampton Society, 1979) and status in 2015 as determined by the 2015 survey. The list also included species not known to occur on the common either in 1979 or in 2015 but which have been recorded at some point in the interim period. The SNHS database of records and the reports in the SNHS Annual Reports (SNHS, 1980 to 2014) were very useful in this regard as well as the additional sources of data from the cemetery (see above). Table 3 shows the same data as for Table 1 except that the species are listed in order of vernacular (common name) as opposed to taxon (scientific name). The City of Southampton Society listed the species in vernacular name order in 1979.

Another spreadsheet (see table 2) disregarded those species that showed no significant change in status between 1979 and 2015; those species regarded as casuals i.e., that can occur whenever or wherever soil is disturbed and those species which seem to have appeared since 1979 and then disappeared again. The remaining species appearing on table 2 were listed in separate subsections according to their status and habitat, thus giving a useful indication of the changes that have occurred on the common of the 36 year period in terms of both habitat and of individual species.

Finally reference was made to the information on the Hants BAP Plant Recording Form template so as to determine whether any of the Vascular Plant species recorded are either Hampshire BAP species, for which there is a specific plan, or Hampshire Notable Species. The former are rare plants in either a Hampshire context (and in most cases scarce nationally as well) and the latter are species that are relatively uncommon in Hampshire and often indicative of high quality habitats. This data only appears on table 1.

Results

Records of 572 species of Vascular Plant have been found for Southampton Common, including Southampton Old Cemetery, in the last 36 years. All of these species are or were considered to either growing wild or naturalised in the wild on the common. Of the truly wild species all are considered to be part of the native flora of the Southampton area. Of the naturalised species most are non-native to the UK but a small number of native Hampshire species, for example Bugle *Ajuga reptans*, Ramsons *Allium ursinum*, Wild Daffodil *Narcissus pseudonarcissus* and Sweet Violet *Viola odorata* probably only occur as 'garden escapes' on the common.

It appears that the flora of Southampton Common had increased by 139 species between 1979 and 2015. This is the net of the losses and gains. 81 of the species that were recorded (or least listed as still occurring) in 1979 were not found in 2015. Conversely 220 of the species recorded in the 2015 survey were apparently not present in 1979. There was also some attempt made to determine which of the species occurring on the common in 1979, and still present in 2015, had declined or increased in abundance (see table 2). It was found that 19 species may have increased and that 20 species may have decreased.

The old cemetery was found to be a very significant area for flora since 129 of the total list of 572 known species i.e. 22.5% (nearly one quarter) have only been seen there since 1979. Only 41 of these species were listed by The City of Southampton Society (1979) thus 88 species found in the old cemetery appear to have arrived there in the last 36 years.

Only two Hampshire BAP (Biodiversity Action Plan) species were found on the common in 1979 and certainly still present in 2015, these species are Green-winged Orchid *Anacamptis (Orchis) morio* and Pale Heath Violet *Viola lactea*. It appears that another Hants BAP species, Petty Whin *Genista anglica* has been lost since 1979. A further Hants BAP species Hampshire-purslane *Ludwigia palustris* has appeared since 1979. Although the identity of this plant was confirmed by E.J.Clement as the native species that is still found in the New Forest (Rand & Mundell, 2011) it would be quite remarkable if it were not an introduction of some kind. Petty Whin *Genista anglica*, though, was certainly a native heathland relic.

Three species of plant on the list of Hampshire Notable Species have been recorded on the common in 1979 or since. Brown Bent-grass *Agrostis vineale* probably isn't new to the common and is likely to have been misidentified in 1979. Curly Pondweed *Potamogeton crispus* is a distinctive water plant and likely to have been native and is now almost certainly lost from the common. The third species English Stonecrop *Sedum anglicum* is established on graves in the old cemetery and not likely to be native to Southampton Common.

Discussion

The main purpose of this survey was to ascertain the presence and status of species of vascular flora within the boundaries of Southampton Common as shown on figure 1. There were the secondary purposes of comparing these findings with those obtained by the previous full survey in 1979 and evaluating the importance of the old cemetery as a refuge for some species. Therefore it is appropriate in this discussion only to consider those species relevant to these aims i.e. those species listed in all three tables (see below) including table 2. The list in table 2 excludes the following groups of species:

- Species where the status on the common doesn't appear to have changed since 1979. Neither the 1979 nor the 2015 status descriptions are quantative so there is only a clear indication of change in a relatively small number of species.

- Species regarded as casuals, mostly annual plants or short-lived perennials that are associated with disturbed or bare ground. In these cases the appearance of these plants are random in terms of time and location and so including these in the discussion is somewhat meaningless.

- Species that have appeared and then disappeared since 1979, for example Adder' Tongue *Ophioglossum vulgatum* and Bee Orchid *Ophrys apifera.* Both of these species appeared in the meadow east of the Boating Lake in 1980's but have subsequently disappeared as the habitat is no longer suitable for them. Neither species were considered extant in 1979.

- A few surprising species were not listed in 1979 but should have been present then, including Elder *Sambucus nigra*, conversely other species such as Rough Meadow Grass *Poa trivialis* was common in 1979 but not found in 2015. The latter is such a common grass that it simply must be still present on the common. These species are not considered further.

- Any species that are believed to have planted or deliberately introduced are also not considered further in this survey, for example Sweet Flag *Acorus calamus* that has certainly been planted around the Ornamental Lake. It was also considered that other water side plants such as Trifid Bur-marigold *Bidens triparta* and Purple Loosestrife *Lythrum salicaria* might be similarly introduced.

A number of rather striking changes in the flora of Southampton Common have occurred between 1979 and 2015 including the following:

- **There seems to have been a great increase in the quantity and variety of fern species, especially in the woodlands of the common.** Where as it is possible that fern species were under recorded in 1979 it is much more likely that there has been a genuine increase. The two fern species listed in 1979 i.e. Broad Buckler-fern *Dryopteris dilitata* and Male Fern *D.filix-mas* have clearly increased in abundance and a further eight species of ferns and horsetails seem to have appeared since 1979. There are no fern species lost or declined. Since most of these fern species grow on walls or in shady woodland, two habitats that appear to have remained stable, this change of status

appears to be due to climatic factors i.e. the fact that the climate appears to have become warmer and wetter since 1979.

- **An increase in the species diversity of native, woodland plants.** There appears to have been a net increase of 20 woodland species, further more only two woodland species appear to have declined since 1979 as opposed 11 that may have increased in abundance. This assessment is somewhat obscured by the fact that some of the new species, although native to the UK, may not actually be native in the Southampton area and are possibly introduced on to the common, for example Bugle *Ajuga reptans*, Dog's Mercury *Mercurialis perennis* and Orpine *Sedum telepium*. However when the increasing species are considered then it can be seen that these are primarily species of dry, very shady woodland, for example Herb-Robert *Geranium robertianum*, Wood Avens *Geum urbanum* and Wood Dock *Rumex sanguineus.* These findings provide support for the idea that the woodlands of the common have become drier and shadier over the last 36 years. In the wetter woodlands shadier conditions would have assisted the increase of ferns at the expense of species such as Tufted Hair Grass *Deschampsia cespitosa*. Some native woodland plants that prefer a little more light have either disappeared i.e. Wood Sorrel *Oxalis acetosella* and Wood Speedwell *Veronica montana* or are now confined to the old cemetery i.e. Wood Anemone *Anemone nemorosa* or Pig-nut *Conopodium majus*.

- **A considerable decline in the heath land flora of the common**. The underlying geology of the common consists of various formations but mainly Wittering Formation and River Terrace Deposits (mainly gravels) (British Geological Survey, 1987). These in turn give rise to thin, poor and somewhat acidic natural soils that support heath land, scrub and woodland of oak or birch. These habitats therefore are the natural habitats of much of the common. However these habitats have seriously declined and the results of the flora survey demonstrate clearly that the decline of these habitats has continued in the last 36 years. No heath land plants have increased in abundance on the common since 1979 but two new species have appeared – these are Pill Sedge *Carex pilulifera* and Heath Spotted Orchid *Dacylorhiza maculata*. In contrast seven heathland species have declined on the open common; 5 species are now confined to the old cemetery and a further 13 species may have disappeared altogether as their habitat has contracted. A few pockets of heathland habitat still exist near the covered reservoir, north of the Ornamental Lake, north of Cemetery Lake and on the eastern side of the old cemetery.

- **32 species of native, or thoroughly naturalised, flowering plants recorded in 1979 are now confined to the old cemetery**. The old cemetery provides a very valuable refuge for many species of plants because natural open woodland, heathland and acidic grassland habitats still exist there; furthermore there are some alkaline grassland conditions as well. The mowing regime there is described by Budd (2012) and favours a high diversity of species. Two woodland species now confined to the old cemetery are listed above. Heathland species that have found a refuge in the cemetery include Harebell *Campanula rotundifolia* and Heath Speedwell *Veronica officinalis*. Many grassland plants are now confined to the cemetery including Betony *Betonica officinalis*, Common Toadflax *Linaria vulgaris* and Goat's-beard *Tragopogon pratensis*. Some species associated with alkaline grassland have appeared in the old cemetery including Dropwort *Filipendula vulgaris*, Hoary Plantain *Plantago media* and Salad Burnet *Poterium sanguisorba*.

- **A considerable increase in the number of species of non-native plants that have become naturalised on the common.** Only two established non-native plants appear to have been lost from the common since 1979 (see table 2) where as a total of 66 species of non-native flowering plants have become established. To a lesser extent this may be due to better recognition of non-native species but it is more likely the trend toward milder weather conditions is a much more significant factor. The great majority of these species are totally non-native in the UK but there are some exceptions, for example Sweet Violet *Viola odorata* which may be native to the UK but only garden varieties occur on the common. These new non-native species can be divided into several sub-groups:

    - **Bird-sown Shrubs:** These are mainly shrubs that have been spread by birds that have eaten their berries and deposited the seeds in their droppings. Examples include three deciduous species of *Cotoneaster* and evergreens such as Bay *Laurus nobilis*, Portugal Laurel *Prunus lusitanicus* and Lauristinus *Viburnum tinus*. These species together with non-native Holm Oak *Quercus ilex* and native Holly *Ilex aquilifolium* and Ivy *Hedera helix* are increasing the amount scrub and reducing the light levels in the drier woodlands of the common. All of these species prefer milder winters.

    - **Bulbous Plants:** Most of these are spring-flowering plants of Mediterranean origin. They are commonly grown in gardens and are favoured by the milder temperatures and earlier growing seasons. Examples established on the common include several species of garlic *Allium sp*., Early Crocus *Crocus tomassinianus*, Summer Snowflake *Leucojum aestivum* in its non-native form and Garden Grape-hyacinth *Muscari armeniacum*. The invasive Hybrid Bluebell *Hyacinthoides x massartiana* is an invasive member of this group as is the summer flowering Montbretia *Crocosma x crocosmiiflora*.

    - **Garden perennials:** Many commonly grown garden perennials, mostly late spring or summer flowering species, have spread into the common from neighbouring gardens, very often as garden throw-outs. Common examples on the common include Sowbread *Cyclamen hederifolium*, Druce's Crane's-bill *Geranium x oxonianum*, Balm *Melissa officinalis*, Green Alkanet *Pentaglottis sempervirens* and Bethlehem-sage *Pulmonaria saccharata*. A few of these species have turned up far away from gardens for example the Siberian Iris *Iris sibirica* that somebody bothered to introduce to a wet meadow in the centre of the common some years ago.

    - **Escapes in the cemetery:** Many plants have appeared in the cemetery as escapes from cultivation. These are either self-sown trees such as Lawson's Cypress *Chamaecyparis lawsoniana*; naturalised ground-cover plants like Winter Heliotrope *Petasites fragrans*; summer-flowering perennials like Orange Lily *Lilium hollandicum* or species such as the stonecrops *Sedum sp*., that have been introduced via the graves.

    - **Other Species:** There a few species that may have arrived on the common through other means, for example the one Walnut *Juglans regia* plant found on

the survey was almost certainly planted by a jay or squirrel. Yellow-flowered Strawberry *Potentilla indica* on the soil banks by Cemetery Road might have been introduced during works to restore these banks. Sweet Cicely *Myrrhis odorata* only grows by The Avenue and nowhere else in Southampton, also it is much more commonly naturalised in northern England on road sides so may have spread here from the north via the road transport system.

Conclusions

572 species of vascular plant, including grasses, sedges and ferns, have been recorded within the boundary of Southampton Common since 1979 inclusive and a considerable proportion of these were found in 2015. This list also includes many species recorded in the old cemetery.

Two Hampshire Biodiversity Action Plan (Hants BAP) species still occur on the common, these are Green-winged Orchid and Heath Dog-violet and both of these species occur in the meadow east of the covered reservoir. This site also holds the heathland species that were not recorded in 1979 i.e. Heath Spotted Orchid and Pill Sedge. Two other Hants BAP species have been recorded on the common but Petty Whin appears to be extinct on the common and Hampshire Purslane is thought to be an introduction. One native Hampshire Notable Species was found on the survey to the east of the playground area. This was Brown Bent-grass.

Comparing the 2015 survey results with those listed by the City of Southampton Society (1979) reveals a great increase in species and numbers of ferns; a general increase in species of dry, shady woodlands and a great proliferation of non-native plants. Much of this positive change seems to be due to climatic factors. The species diversity in the grasslands and the wetter areas does not seem to have changed much since 1979 although there are quite a lot of changes in the flora composition of the wetter habitats and of aquatic plants.

The most negative trend has been the great decline in the heathland flora and habitat, the only exception being the area near the covered reservoir (see above), the heath/acid grassland relic habitat in the old cemetery and an area of partially restored heath north of the Ornamental Lake. The majority of dry and damp heathland plants listed in 1979 have either declined, become confined to the old cemetery or have disappeared altogether. The old cemetery, which is managed quite differently from the rest of the common, has provided a refuge in the middle of the city for many species of woodland, grassland and heathland plants.

References

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Acknowledgements

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John Vetterlein for providing information on the status of the vascular flora within Southampton Old Cemetery.

Appendices

Due to the size of the spreadsheets these can most conveniently be inserted as hyperlinks, see below:

Southampton Common Flora Survey 2015 List.xlsx

Map of Southampton Common – see page 13 (below)

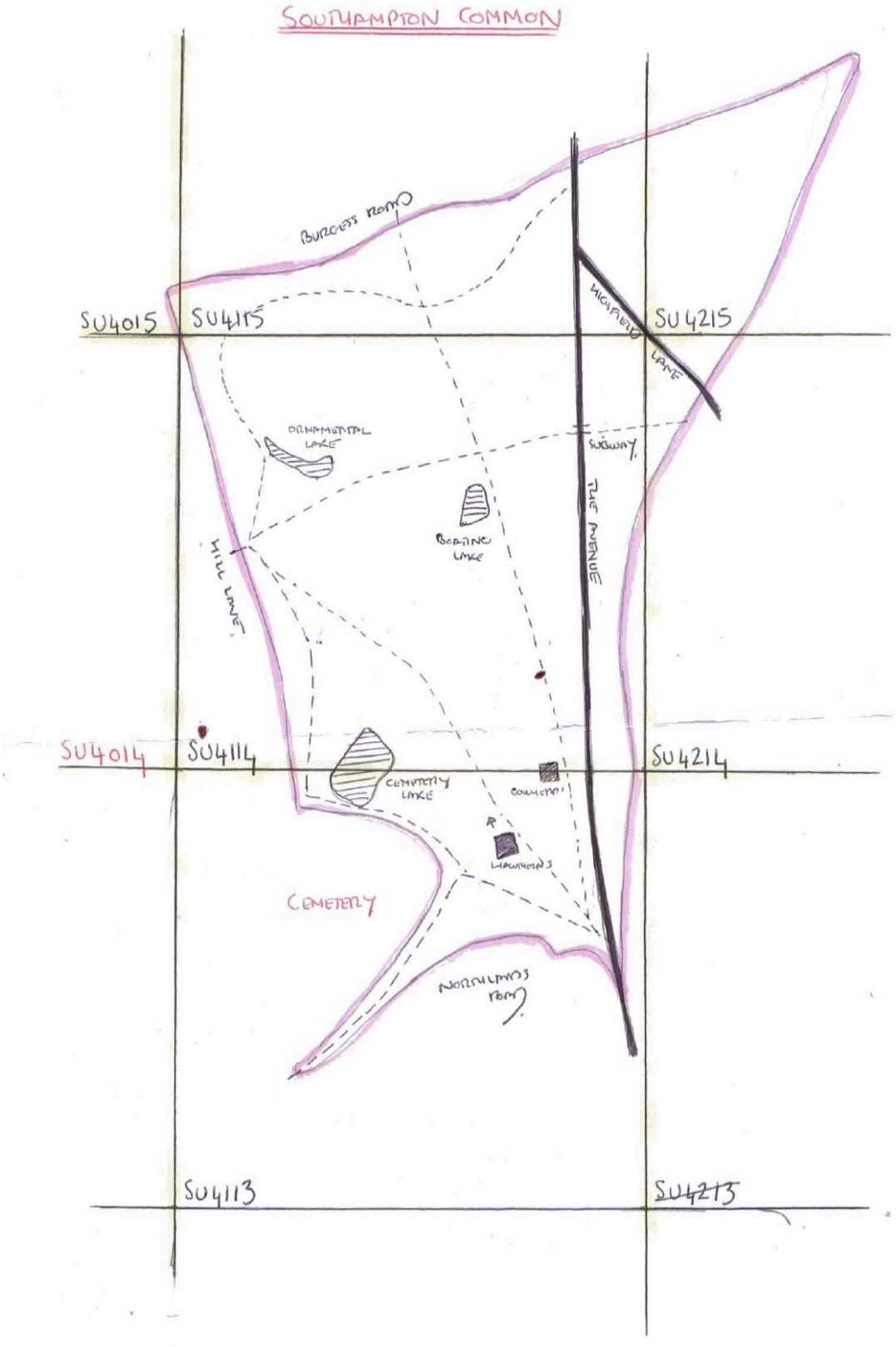

Figure 1: Map of Southampton Common showing 1km OS grid squares (Budd, P.)